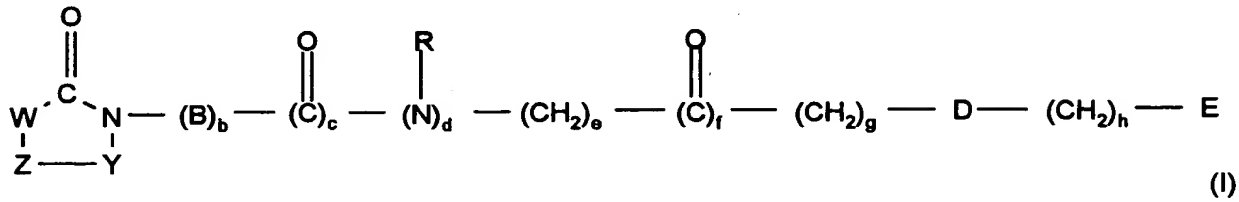
What is claimed is:

1. A pharmaceutical preparation comprising a VLA-4-antagonizing effective amount of one or more compounds of formula I



(I)

in which

W is R^1-A-C(R^{13})< or R^1-A-CH=C<;

Y is a carbonyl, thiocarbonyl or methylene group;

Z is N(R^0), oxygen, sulfur or a methylene group;

A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylenephenyl, where the bivalent (C_1-C_6)-alkylene radical can be unsubstituted or substituted by a radical from the group consisting of (C_1-C_8)-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_3-C_{10})-cycloalkyl, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_6)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl and heteroaryl-(C_1-C_6)-alkyl optionally substituted in the heteroaryl radical;

D is C(R^2)(R^3), N(R^3) or CH=C(R^3);

E is tetrazolyl, (R^8O)$_2$P(O), HOS(O)$_2$, R^9NHS(O)$_2$ or R^{10}CO;

R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^0 is hydrogen, (C_1-C_8)-alkyl, (C_3-C_{12})-cycloalkyl, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-bicycloalkyl, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-tricycloalkyl, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl, heteroaryl-(C_1-C_8)-alkyl optionally substituted in the heteroaryl radical, CHO, (C_1-C_8)-alkyl-CO, (C_3-C_{12})-cycloalkyl-CO, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-bicycloalkyl-CO, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-tricycloalkyl-CO, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-CO, optionally substituted (C_6-C_{14})-aryl-CO, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-CO optionally substituted in the aryl radical, optionally substituted heteroaryl-CO, heteroaryl-(C_1-C_8)-alkyl-CO optionally substituted in the heteroaryl radical, (C_1-C_8)-alkyl-S(O)$_n$,

(C_3-C_{12})-cycloalkyl-$S(O)_n$, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, optionally substituted (C_6-C_{14})-aryl-$S(O)_n$,(C_6-C_{14})-aryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the aryl radical, optionally substituted heteroaryl-$S(O)_n$ or heteroaryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the heteroaryl radical, where n is 1 or 2;

R^1 is X-NH-C(=NH)-$(CH_2)_p$ or X^1-NH-$(CH_2)_p$, where p is 0, 1, 2 or 3;

X is hydrogen,(C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, $(R^8O)_2P(O)$, cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, $R^{11}NH$, R^4CO, $COOR^4$, $CON(CH_3)R^{14}$, $CONHR^{14}$, $CSNHR^{14}$, $COOR^{15}$, $CON(CH_3)R^{15}$ or $CONHR^{15}$;

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino and trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-, and their esters and amides, where hydrogen

or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, (C_1-C_{18})-alkylaminocarbonyl, (C_3-C_8)-cycloalkylaminocarbonyl, optionally substituted (C_6-C_{14})-arylaminocarbonyl, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_3-C_8)-cycloalkyl;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-$((C_1-C_{18})$-alkyl)amino;

R^{11} is hydrogen, (C_1-C_{18})-alkyl, $R^{12}CO$, optionally substituted (C_6-C_{14})-aryl-$S(O)_2$, (C_1-C_{18})-alkyl-$S(O)_2$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, (C_1-C_{18})-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, optionally substituted (C_6-C_{14})-aryl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-$((C_1-C_{18})$-alkyl)amino;

R^{13} is hydrogen, (C_1-C_6)-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^{14} is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonyl-amino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, $HOS(O)_2$-(C_1-C_3)-alkyl, $R^9NHS(O)_2$-(C_1-C_3)-alkyl, $(R^8O)_2P(O)$-(C_1-C_3)-alkyl, tetrazolyl-(C_1-C_3)-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be

substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

b, c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6;

in all their stereoisomeric forms and mixtures thereof in any ratio, and/or of their physiologically tolerable salts; and one or more physiologically acceptable carriers and/or additives.

2. The preparation as claimed in claim 1, wherein

W is R^1-A-C(R^{13}) or R^1-A-CH=C;

Y is a carbonyl, thiocarbonyl or methylene group;

Z is N(R^0), oxygen, sulfur or a methylene group;

A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylene-phenyl;

D is C(R^2)(R^3), N(R^3) or CH=C(R^3);

E is tetrazolyl, $(R^8O)_2P(O)$, $HOS(O)_2$, $R^9NHS(O)_2$ or $R^{10}CO$;

R and R^0 independently of one another are hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^1 is X-NH-C(=NH)-$(CH_2)_p$ or X^1-NH-$(CH_2)_p$, where p is 0, 1, 2 or 3;

X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, $(R^8O)_2P(O)$, cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R") where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, $R^{11}NH$, R^4CO, $COOR^4$, $CON(CH_3)R^{14}$, $CONHR^{14}$, $CSNHR^{14}$, $COOR^{15}$, $CON(CH_3)R^{15}$ or $CONHR^{15}$;

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-((C_1-C_{18})-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino or trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-, and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, (C_1-C_{18})-alkylaminocarbonyl, (C_3-C_8)-cycloalkylaminocarbonyl, optionally substituted (C_6-C_{14})-arylaminocarbonyl, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_3-C_8)-cycloalkyl;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-((C_1-C_{18})-alkyl)amino;

R^{11} is hydrogen, (C_1-C_{18})-alkyl, $R^{12}CO$, optionally substituted (C_6-C_{14})-aryl-$S(O)_2$, (C_1-C_{18})-alkyl-$S(O)_2$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, (C_1-C_{18})-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, optionally substituted (C_6-

C_{14})-aryl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-((C_1-C_{18})-alkyl)amino;

R^{13} is hydrogen, (C_1-C_6)-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^{14} is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-((C_1-C_{18})-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substiuted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, $HOS(O)_2$-(C_1-C_3)-alkyl, $R^9NHS(O)_2$-(C_1-C_3)-alkyl, $(R^8O)_2P(O)$-(C_1-C_3)-alkyl, tetrazolyl-(C_1-C_3)-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

b, c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

3. The preparation as claimed in claim 1, wherein R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, (C_3-C_8)-cycloalkyl-(C_1-C_4)-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

4. The preparation as claimed in claim 3, wherein R^0 is biphenylylmethyl, naphthylmethyl or benzyl each of which is unsubstituted or monosubstituted or polysubstituted in the aryl radical; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

5. The preparation as claimed in claim 1, wherein simultaneously
W is R^1-A-CH=C and therein A is a phenylene radical, or W is R^1-A-C(R^{13}) and therein A is a bivalent radical from the group consisting of methylene, ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene, phenylenemethyl;
B is a bivalent radical from the group consisting of methylene, ethylene, trimethylene,

tetramethylene, vinylene, phenylene, or is substituted methylene or ethylene;
E is $R^{10}CO$;
R is hydrogen, (C_1-C_6)-alkyl or benzyl;
R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;
R^1 is X-NH-C(=NH), X-NH-C(=NX)-NH or X-NH-CH_2;
X is hydrogen, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_8)-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl or hydroxyl;
R^2 is hydrogen or (C_1-C_8)-alkyl;
R^3 is (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, pyridyl, $R^{11}NH$, R^4CO, $COOR^4$, $CONHR^{14}$, $CSNHR^{14}$, $COOR^{15}$ and $CONHR^{15}$;
and e, g and h independently of one another are the numbers 0, 1, 2 or 3; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

6. The preparation as claimed in claim 1, wherein W is R^1-A-C(R^{13}) and R^{13} is (C_1-C_6)-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

7. The preparation as claimed in claim 1, wherein R^3 is optionally substituted (C_6-C_{14})-aryl, $COOR^4$, $R^{11}NH$ or $CONHR^{14}$, where -NHR^{14} is the radical of an α-amino acid, its ω-amino-(C_2-C_8)-alkylamide, its (C_1-C_8)-alkyl ester or its (C_6-C_{14})-aryl-(C_1-C_4)-alkyl ester; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

8. The preparation as claimed in claim 7, wherein the radical of the α-amino acids is selected from the group consisting of valine, lysine, phenylglycine, phenylalanine, tryptophan, and their (C_1-C_8)-alkyl esters or (C_6-C_{14})-aryl-(C_1-C_4)-alkyl esters; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

9. The preparation as claimed in claim 1, wherein
W is R^1-A-C(R^{13});
Y is a carbonyl group;
Z is N(R^0);
A is ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene or phenylenemethyl;
B is an unsubstituted or substituted methylene radical;
D is C(R^2)(R^3);
E is $R^{10}CO$;

R is hydrogen or (C_1-C_4)-alkyl;
R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;
R^1 is H_2N-C(=NH), H_2N-C(=NH)-NH or H_2N-CH_2;
R^2 is hydrogen;
R^3 is the radical $CONHR^{14}$;
R^{10} is hydroxyl or (C_1-C_8)-alkoxy;
R^{13} is (C_1-C_6)-alkyl, (C_3-C_7)-cycloalkyl or benzyl;
R^{14} is methyl which is substituted by hydroxycarbonyl and a radical from the group consisting of (C_1-C_4)-alkyl, phenyl and benzyl, or is methyl which is substituted by (C_1-C_8)-alkoxycarbonyl and a radical from the group consisting of (C_1-C_4)-alkyl, phenyl and benzyl;
b, c and d are 1 and e, f and g are 0;
h is 1 or 2; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

10. The preparation as claimed in claim 1, wherein simultaneously W is R^1-A-CH=C and therein A is a phenylene radical, or W is R^1-A-C(R^{13}) and therein A is a bivalent radical from the group consisting of methylene, ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene, phenylenemethyl;
B is a bivalent radical from the group consisting of methylene, ethylene, trimethylene, tetramethylene, vinylene, phenylene or is substituted methylene or ethylene;
E is R^{10} CO;
R is hydrogen or (C_1-C_6)-alkyl;
R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;
R^1 is X-NH-C(=NH), X-NH-C(=NX)-NH or X-NH-CH_2;
X is hydrogen, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_8)-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl or hydroxyl;
R^2 is hydrogen or (C_1-C_8)-alkyl;
R^3 is $CONHR^{15}$ or $CONHR^{14}$ where R^{14} herein is a (C_1-C_8)-alkyl radical which is unsubstituted or substituted by one or more (C_6-C_{14})-aryl radicals;
R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16}, where R^{16} is a 7- to 12-membered bridged bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;
and e, g and h independently of one another are the numbers 0, 1, 2 or 3 and b, c and d are 1; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

11. The preparation as claimed in claim 10, wherein R^{15} is an adamantyl radical or an adamantylmethyl radical; wherein said compound or compounds may be present in all their

stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

12. The preparation as claimed in claim 1, wherein simultaneously
W is R^1-A-C(R^{13});
Y is a carbonyl group;
Z is N(R^0);
A is ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene or phenylenemethyl;
B is an unsubstituted or substituted methylene radical;
D is C(R^2)(R^3);
E is R^{10}CO;
R is hydrogen or (C_1-C_4)-alkyl;
R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;
R^1 is H_2N-C(=NH), H_2N-C(=NH)-NH or H_2N-CH_2;
R^2 is hydrogen;
R^3 is CONHR^{15} or CONHR^{14} where R^{14} herein is a (C_1-C_6)-alkyl radical which is unsubstituted or substituted by one or more (C_6-C_{10})-aryl radicals;
R^{10} is hydroxyl or (C_1-C_8)-alkoxy;
R^{13} is (C_1-C_6)-alkyl, (C_3-C_7)-cycloalkyl or benzyl;
R^{15} is an adamantyl radical or an adamantylmethyl radical;
b, c and d are 1 and e, f and g are 0;
h is 1 or 2; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

13. The preparation as claimed in claim 1, wherein simultaneously
W is R^1-A-C(R^{13});
Y is a carbonyl group;
Z is N(R^0);
A is ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene, phenylenemethyl;
B is an unsubstituted or substituted methylene radical or ethylene radical;
D is C(R^2)(R^3);
E is R^{10}CO;
R is hydrogen or (C_1-C_4)-alkyl;
R^0 is (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which is optionally substituted in the aryl radical;
R^1 is H_2N-C(=NH), H_2N-C(=NH)-NH or H_2N-CH_2;
R^2 is hydrogen;
R^3 is an unsubstituted phenyl radical or naphthyl radical, a phenyl radical or naphthyl radical substituted by one, two or three identical or different radicals from the group consisting of

$(C_1$-$C_4)$-alkyl, $(C_1$-$C_4)$-alkoxy, hydroxyl, halogen, trifluoromethyl, nitro, methylenedioxy, ethylenedioxy, hydroxycarbonyl, $(C_1$-$C_4)$-alkoxycarbonyl, aminocarbonyl, cyano, phenyl, phenoxy, benzyl and benzyloxy, a pyridyl radical, a $(C_1$-$C_4)$-alkyl radical, a $(C_2$-$C_4)$-alkenyl radical, a $(C_2$-$C_4)$-alkynyl radical or a $(C_5$-$C_6)$-cycloalkyl radical;
R^{10} is hydroxyl or $(C_1$-$C_8)$-alkoxy;
R^{13} is $(C_1$-$C_6)$-alkyl, $(C_3$-$C_7)$-cycloalkyl or benzyl;
b, c and d are 1 and e, f and g are 0;
h is 1 or 2; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

14. The preparation as claimed in claim 1, wherein simultaneously
W is R^1-A-$C(R^{13})$;
Y is a carbonyl group;
Z is $N(R^0)$;
A is ethylene, trimethylene, tetramethylene, pentamethylene, cyclohexylene, phenylene, phenylenemethyl;
B is an unsubstituted or substituted methylene radical or ethylene radical;
D is $C(R^2)(R^3)$;
E is $R^{10}CO$;
R is hydrogen or $(C_1$-$C_4)$-alkyl;
R^0 is $(C_1$-$C_8)$-alkyl, $(C_3$-$C_8)$-cycloalkyl, optionally substituted $(C_6$-$C_{14})$-aryl or $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical;
R^1 is H_2N-C(=NH), H_2N-C(=NH)-NH or H_2N-CH_2;
R^2 is hydrogen;
R^3 is $R^{11}NH$;
R^{10} is hydroxyl or $(C_1$-$C_8)$-alkoxy;
R^{13} is $(C_1$-$C_6)$-alkyl, $(C_3$-$C_7)$-cycloalkyl or benzyl;
b, c, d and e are 1 and f and g are 0;
h is 0; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

15. The preparation as claimed in claim 1 in which a substituted methylene radical or substituted ethylene radical representing the group B carries as a substituent a radical from the group consisting of $(C_1$-$C_8)$-alkyl, $(C_2$-$C_6)$-alkenyl, $(C_2$-$C_6)$-alkynyl, $(C_3$-$C_8)$-cycloalkyl, $(C_3$-$C_8)$-cycloalkyl-$(C_1$-$C_4)$-alkyl, optionally substituted $(C_6$-$C_{10})$-aryl, $(C_6$-$C_{10})$-aryl-$(C_1$-$C_4)$-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl and heteroaryl-$(C_1$-$C_4)$-alkyl; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

16. The preparation as claimed in claim 1, in which B is an unsubstituted methylene radical or a methylene radical which is substituted by a $(C_1$-$C_8)$-alkyl radical; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio,

and/or as their physiologically tolerable salts.

17. The preparation as claimed in claim 1, in which B is an unsubstituted methylene radical or a methylene radical which is substituted by a (C_1-C_6)-alkyl radical; wherein said compound or compounds may be present in all their stereoisomeric forms and mixtures thereof in any ratio, and/or as their physiologically tolerable salts.

18. The preparation as claimed in claim 1 wherein the VLA-4-antagonizing effective amount is an amount effective for suppressing inflammation.

19. The preparation as claimed in claim 1 wherein the VLA-4-antagonizing effective amount is an amount effective for inhibiting leucocyte migration and/or adhesion.

20. The preparation as claimed in claim 1 wherein the VLA-4-antagonizing effective amount is an amount effective for treatment or prevention of a disease or disorder selected from the group consisting of rheumatoid arthritis, inflammatory bowel disease, systemic lupus erythematosus, inflammatory disorders of the central nervous system, asthma, allergies, cardiovascular disorders, arteriosclerosis, restenoses, diabetes, damage to organ transplants, tumor growth, tumor metastasis, and malaria.

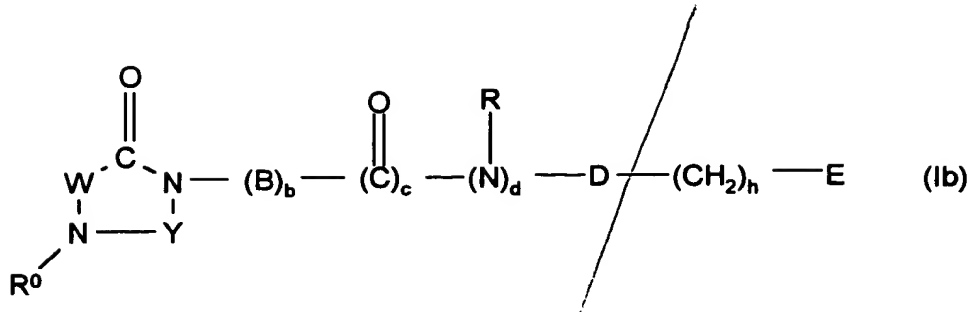
21. A method for suppressing inflammation comprising administering to a subject in need thereof an effective amount of the preparation as claimed in claim 1.

22. A method for antagonizing VLA-4 comprising administering to a subject in need thereof an effective amount of the preparation as claimed in claim 1.

23. A method for treating or preventing a disease or disorder selected from the group consisting of rheumatoid arthritis, inflammatory bowel disease, systemic lupus erythematosus, inflammatory disorders of the central nervous system, asthma, allergies, cardiovascular disorders, arteriosclerosis, restenoses, diabetes, damage to organ transplants, tumor growth, tumor metastasis, and malaria comprising administering to a subject in need thereof an effective amount of the preparation as claimed in claim 1.

24. A method for the treatment or prophylaxis of diseases in which leucocyte adhesion and/or leucocyte migration exhibits an undesired extent comprising administering to a subject in need thereof an effective amount of the preparation as claimed in claim 1.

25. A compound of the formula Ib



(Ib)

in which

W is R^1-A-CH or R^1-A-CH=C;

Y is a carbonyl, thiocarbonyl or methylene group;

A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylenephenyl;

D is $C(R^2)(R^3)$;

E is tetrazolyl, $(R^8O)_2P(O)$, $HOS(O)_2$, $R^9NHS(O)_2$ or $R^{10}CO$;

R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^0 is (C_7-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^1 is X-NH-C(=NH)-$(CH_2)_p$ or X^1-NH-$(CH_2)_p$ where p is one of the numbers 0, 1, 2 and 3;

X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, $(R^8O)_2P(O)$, cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen or phenyl;

R^3 is hydrogen, $COOR^4$, $CON(CH_3)R^4$ or $CONHR^4$;

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical,

amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino and trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-, and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, (C_1-C_{18})-alkylaminocarbonyl, (C_3-C_8)-cycloalkylaminocarbonyl, optionally substituted (C_6-C_{14})-arylaminocarbonyl, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_3-C_8)-cycloalkyl;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-((C_1-C_{18})-alkyl)amino;

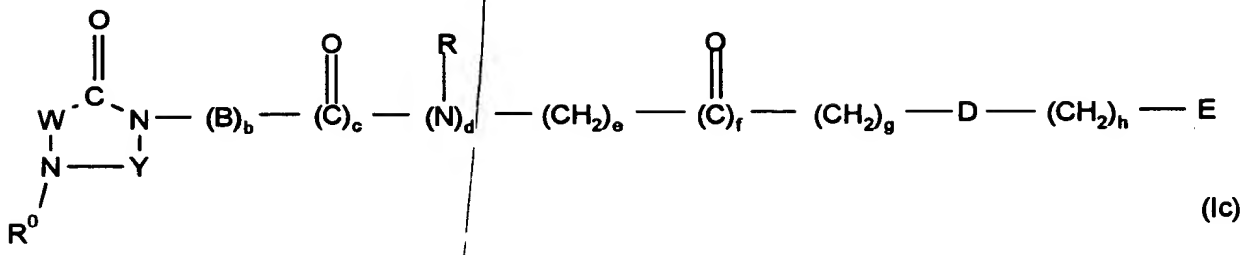
b, c and d independently of one another can be 0 or 1, but cannot all simultaneously be 0;

h is one of the numbers 0, 1, 2, 3, 4, 5 and 6;

in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

26. A pharmaceutical preparation, which comprises one or more compounds of the formula Ib as claimed in claim 25 and/or their physiologically tolerable salts in addition to one or more pharmaceutically innocuous carriers and/or additives.

27. A compound of the formula Ic



(Ic)

in which

W is R^1-A-C(R^{13});

Y is a carbonyl, thiocarbonyl or methylene group;

A is a phenylene radical;

B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylenephenyl;

D is C(R^2)(R^3), N(R^3) or CH=C(R^3);

E is tetrazolyl, (R^8O)$_2$P(O), HOS(O)$_2$, R^9NHS(O)$_2$ or R^{10}CO;

R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^0 is (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^1 is X-NH-C(=NH)-(CH$_2$)$_p$ or X^1-NH-(CH$_2$)$_p$, where p is 0, 1, 2 or 3;

X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, (R^8O)$_2$P(O), cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, R^{11}NH, R^4CO, COOR^4, CON(CH$_3$)R^{14}, CONHR^{14}, CSNHR^{14}, COOR^{15}, CON(CH$_3$)R^{15} or CONHR^{15};

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-((C_1-C_{18})-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl,

$(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, $(C_1$-$C_{18})$-alkoxy, $(C_1$-$C_{18})$-alkoxycarbonyl, optionally substituted $(C_3$-$C_8)$-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted $(C_6$-$C_{14})$-aryl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of $(C_1$-$C_{18})$-alkyl, $(C_1$-$C_{18})$-alkoxy, halogen, nitro, amino or trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-$(C_1$-$C_8)$-alkylated or N-$((C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-, and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, $(C_1$-$C_{18})$-alkyl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl, $(C_1$-$C_{18})$-alkylcarbonyl, $(C_1$-$C_{18})$-alkoxycarbonyl, $(C_6$-$C_{14})$-arylcarbonyl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkylcarbonyl or $(C_6$-$C_{14})$-aryl-$(C_1$-$C_{18})$-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of $(C_1$-$C_8)$-alkyl, $(C_1$-$C_8)$-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-$(C_1$-$C_8)$-alkylated or N-$((C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, $(C_1$-$C_{18})$-alkyl, optionally substituted $(C_6$-$C_{14})$-aryl or $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, $(C_1$-$C_{18})$-alkylaminocarbonyl, $(C_3$-$C_8)$-cycloalkylaminocarbonyl, optionally substituted $(C_6$-$C_{14})$-arylaminocarbonyl, $(C_1$-$C_{18})$-alkyl, optionally substituted $(C_6$-$C_{14})$-aryl or $(C_3$-$C_8)$-cycloalkyl;

R^{10} is hydroxyl, $(C_1$-$C_{18})$-alkoxy, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxy which can also be substituted in the aryl radical, optionally substituted $(C_6$-$C_{14})$-aryloxy, amino or mono- or di-$((C_1$-$C_{18})$-alkyl)amino;

R^{11} is hydrogen, $(C_1$-$C_{18})$-alkyl, $R^{12}CO$, optionally substituted $(C_6$-$C_{14})$-aryl-$S(O)_2$, $(C_1$-$C_{18})$-alkyl-$S(O)_2$, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, $(C_1$-$C_{18})$-alkyl, $(C_2$-$C_8)$-alkenyl, $(C_2$-$C_8)$-alkynyl, optionally substituted $(C_6$-$C_{14})$-aryl, $(C_1$-$C_{18})$-alkoxy, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxy which can also be substituted in the aryl radical, optionally substituted $(C_6$-$C_{14})$-aryloxy, amino or mono- or di-$((C_1$-$C_{18})$-alkyl)amino;

R^{13} is $(C_1$-$C_6)$-alkyl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical or

(C_3-C_8)-cycloalkyl;

R^{14} is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, $HOS(O)_2$-(C_1-C_3)-alkyl, $R^9NHS(O)_2$-(C_1-C_3)-alkyl, $(R^8O)_2P(O)$-(C_1-C_3)-alkyl, tetrazolyl-(C_1-C_3)-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

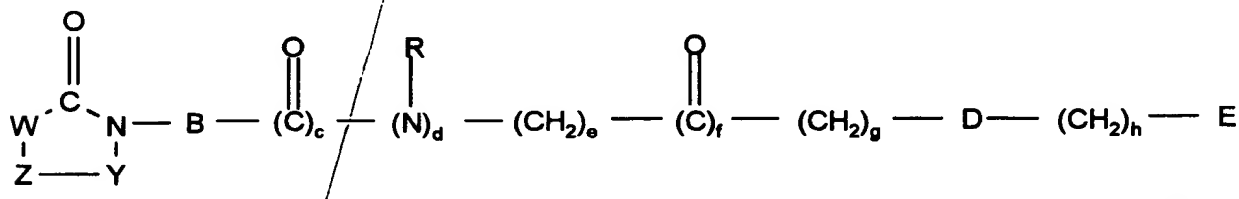
b, c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6;

in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

28. A pharmaceutical preparation, which comprises one or more compounds of the formula Ic as claimed in claim 27 and/or their physiologically tolerable salts in addition to one or more pharmaceutically innocuous carriers and/or additives.

29. A compound of the formula Id



(Id)

in which

W is R^1-A-$C(R^{13})$ or R^1-A-CH=C;

Y is a carbonyl, thiocarbonyl or methylene group;

Z is $N(R^6)$;

A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or

a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent (C_1-C_6)-alkylene radical which is substituted by a radical from the group consisting of (C_1-C_8)-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_3-C_{10})-cycloalkyl, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl, optionally substituted (C_6-C_{14})-aryl,(C_6-C_{14})-aryl-(C_1-C_6)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl and heteroaryl-(C_1-C_6)-alkyl optionally substituted in the heteroaryl radical;

D is $C(R^2)(R^3)$, $N(R^3)$ or $CH=C(R^3)$;

E is tetrazolyl, $(R^8O)_2P(O)$, $HOS(O)_2$, $R^9NHS(O)_2$ or $R^{10}CO$;

R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^0 is hydrogen,(C_1-C_8)-alkyl, (C_3-C_{12})-cycloalkyl, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-bicycloalkyl, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-tricycloalkyl, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl, heteroaryl-(C_1-C_8)-alkyl optionally substituted in the heteroaryl radical, CHO, (C_1-C_8)-alkyl-CO, (C_3-C_{12})-cycloalkyl-CO, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-bicycloalkyl-CO, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-tricycloalkyl-CO, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-CO, optionally substituted (C_6-C_{14})-aryl-CO, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-CO optionally substituted in the aryl radical, optionally substituted heteroaryl-CO, heteroaryl-(C_1-C_8)-alkyl-CO optionally substituted in the heteroaryl radical, (C_1-C_8)-alkyl-$S(O)_n$, (C_3-C_{12})-cycloalkyl-$S(O)_n$, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, optionally substituted (C_6-C_{14})-aryl-$S(O)_n$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the aryl radical, optionally substituted heteroaryl- $S(O)_n$ or heteroaryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the heteroaryl radical, where n is 1 or 2;

R^1 is X-NH-C(=NH)-$(CH_2)_p$ or X^1-NH-$(CH_2)_p$, where p is 0, 1, 2 or 3;

X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, $(R^8O)_2P(O)$, cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, $R^{11}NH$, R^4CO,

$COOR^4$, $CON(CH_3)R^{14}$, $CONHR^{14}$, $CSNHR^{14}$, $COOR^{15}$, $CON(CH_3)R^{15}$ or $CONHR^{15}$;

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl,(C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino and trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to $-NH-CH_2-$, and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to $-NH-CH_2-$;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, (C_1-C_{18})-alkylaminocarbonyl, (C_3-C_8)-cycloalkylaminocarbonyl, optionally substituted (C_6-C_{14})-arylaminocarbonyl, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_3-C_8)-cycloalkyl;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-$((C_1-C_{18})$-alkyl)amino;

R^{11} is hydrogen, (C_1-C_{18})-alkyl, $R^{12}CO$, optionally substituted (C_6-C_{14})-aryl-$S(O)_2$, (C_1-C_{18})-

alkyl-$S(O)_2$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, (C_1-C_{18})-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, optionally substituted (C_6-C_{14})-aryl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-((C_1-C_{18})-alkyl)amino;

R^{13} is hydrogen, (C_1-C_6)-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^{14} is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-((C_1-C_{18})-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, $HOS(O)_2$-(C_1-C_3)-alkyl, $R^9NHS(O)_2$-(C_1-C_3)-alkyl, $(R^8O)_2P(O)$-(C_1-C_3)-alkyl, tetrazolyl-(C_1-C_3)-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6;

in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

30. A compound of the formula Ic as claimed in claim 29, in which simultaneously

W is R^1-A-$C(R^{13})$;

Y is a carbonyl group;

Z is $N(R^6)$;

A is a bivalent radical from the group consisting of (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent methylene radical or ethylene radical which is substituted by a radical from the group consisting of (C_1-C_8)-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_3-C_{10})-cycloalkyl, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_6)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl and heteroaryl-(C_1-C_6)-alkyl optionally substituted in the heteroaryl radical;

D is $C(R^2)(R^3)$;
E is tetrazolyl or $R^{10}CO$;
R is hydrogen or (C_1-C_8)-alkyl;
R^0 is hydrogen, (C_1-C_8)-alkyl, (C_3-C_{12})-cycloalkyl, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-bicycloalkyl, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-tricycloalkyl, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl, heteroaryl-(C_1-C_8)-alkyl optionally substituted in the heteroaryl radical, CHO, (C_1-C_8)-alkyl-CO, (C_3-C_{12})-cycloalkyl-CO, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-bicycloalkyl-CO, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-tricycloalkyl-CO, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-CO, optionally substituted (C_6-C_{14})-aryl-CO, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-CO optionally substituted in the aryl radical, optionally substituted heteroaryl-CO, heteroaryl-(C_1-C_8)-alkyl-CO optionally substituted in the heteroaryl radical, (C_1-C_8)-alkyl-$S(O)_n$, (C_3-C_{12})-cycloalkyl-$S(O)_n$, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-$S(O)_n$, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-$S(O)_n$, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-$S(O)_n$, optionally substituted (C_6-C_{14})-aryl-$S(O)_n$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the aryl radical, optionally substituted heteroaryl-$S(O)_n$ or heteroaryl-(C_1-C_8)-alkyl-$S(O)_n$ optionally substituted in the heteroaryl radical, where n is 1 or 2;
R^1 is X-NH-C(=NH)-$(CH_2)_p$ or X^1-NH-$(CH_2)_p$ where p is 0, 1, 2 or 3;
X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;
X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;
R^2 is hydrogen or (C_1-C_8)-alkyl;
R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, $R^{11}NH$, $CON(CH_3)R^{14}$, $CONHR^{14}$, $CON(CH_3)R^{15}$ or $CONHR^{15}$;
R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical, can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino or trifluoromethyl;
R^6 is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be

substituted in the aryl radical, and their esters and amides, where free functional groups can be protected by protective groups customary in peptide chemistry;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-$((C_1-C_{18})$-alkyl)amino;

R^{11} is $R^{12}CO$, optionally substituted (C_6-C_{14})-aryl-$S(O)_2$ or (C_1-C_{18})-alkyl-$S(O)_2$;

R^{12} is hydrogen, (C_1-C_{18})-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, optionally substituted (C_6-C_{14})-aryl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical or optionally substituted (C_6-C_{14})-aryloxy;

R^{13} is hydrogen or (C_1-C_4)-alkyl;

R^{14} is(C_1-C_{10})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)amino-carbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, (C_1-C_8)-alkoxy, (C_1-C_8)-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, tetrazolyl-(C_1-C_3)-alkyl, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

c and d are 1 and f is 0;

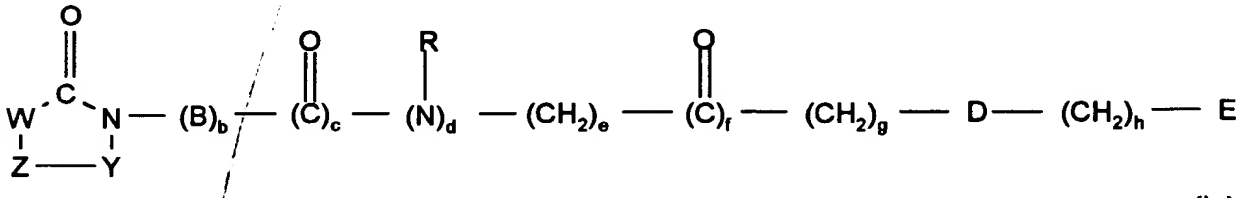
e and h independently of one another are 0 or 1 and g is 0;

in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

31. A compound of the formula Id as claimed in claim 29, in which the radical by which the group B is substituted is a (C_1-C_8)-alkyl radical, in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

32. A pharmaceutical preparation which comprises one or more compounds of the formula Id as claimed in claim 29 and/or their physiologically tolerable salts in addition to one or more pharmaceutically innocuous carriers and/or additives.

33. A compound of the formula Ie



(Ie)

in which

W is R^1-A-C(R^{13}) or R^1-A-CH=C;

Y is a carbonyl, thiocarbonyl or methylene group;

Z is N(R^0), oxygen, sulfur or a methylene group;

A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;

B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylenephenyl;

D is C(R^2)(R^3), N(R^3) or CH=C(R^3);

E is tetrazolyl, (R^8O)$_2$P(O), HOS(O)$_2$, R^9NHS(O)$_2$ or R^{10}CO;

R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;

R^0 is CHO, (C_1-C_8)-alkyl-CO, (C_3-C_{12})-cycloalkyl-CO, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-bicycloalkyl-CO, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-tricycloalkyl-CO, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-CO, optionally substituted (C_6-C_{14})-aryl-CO, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-CO, optionally substituted in the aryl radical, optionally substituted heteroaryl-CO, heteroaryl-(C_1-C_8)-alkyl-CO optionally substituted in the heteroaryl radical, (C_1-C_8)-alkyl-S(O)$_n$, (C_3-C_{12})-cycloalkyl-S(O)$_n$, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, (C_6-C_{12})-bicycloalkyl-S(O)$_n$, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, (C_6-C_{12})-tricycloalkyl-S(O)$_n$, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, optionally substituted (C_6-C_{14})-aryl-S(O)$_n$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-S(O)$_n$ optionally substituted in the aryl radical, optionally substituted heteroaryl-S(O)$_n$ or heteroaryl-(C_1-C_8)-alkyl-S(O)$_n$ optionally substituted in the heteroaryl radical, where n is 1 or 2;

R^1 is X-NH-C(=NH)-(CH_2)$_p$ or X^1-NH-(CH_2)$_p$, where p is 0, 1, 2 or 3;

X is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, (R^8O)$_2$P(O), cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, R^{11}NH, R^4CO, COOR^4, CON(CH_3)R^{14}, CONHR^{14}, CSNHR^{14}, COOR^{15}, CON(CH_3)R^{15} or CONHR^{15};

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by

identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-((C_1-C_{18})-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino or trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2- , and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})- alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-((C_6-C_{14})-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, (C_1-C_{18})-alkylaminocarbonyl, (C_3-C_8)-cycloalkylaminocarbonyl, optionally substituted (C_6-C_{14})-arylaminocarbonyl, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_3-C_8)-cycloalkyl;

R^{10} is hydroxyl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-((C_1-C_{18})-alkyl)amino;

R^{11} is hydrogen, (C_1-C_{18})-alkyl, $R^{12}CO$, optionally substituted (C_6-C_{14})-aryl-$S(O)_2$, (C_1-C_{18})-alkyl-$S(O)_2$, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, (C_1-C_{18})-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, optionally substituted (C_6-C_{14})-aryl, (C_1-C_{18})-alkoxy, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxy which can also be substituted in the aryl radical, optionally substituted (C_6-C_{14})-aryloxy, amino or mono- or di-$((C_1-C_{18})$-alkyl)amino;

R^{13} is hydrogen, (C_1-C_6)-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^{14} is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, $HOS(O)_2$-(C_1-C_3)-alkyl, $R^9NHS(O)_2$-(C_1-C_3)-alkyl, $(R^8O)_2P(O)$-(C_1-C_3)-alkyl, tetrazolyl-(C_1-C_3)-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-(C_1-C_6)-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of (C_1-C_4)-alkyl and oxo;

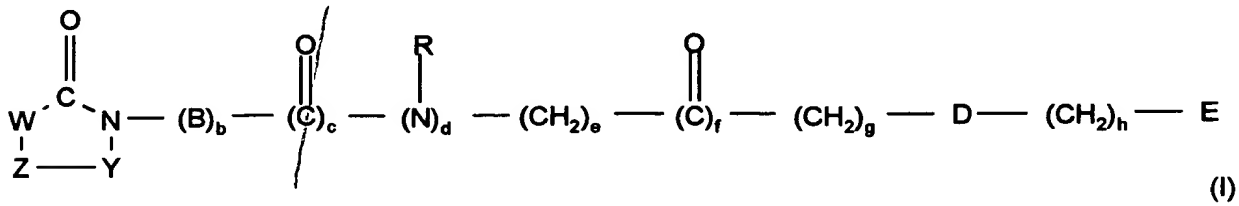
b, c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6;

in all its stereoisomeric forms and mixtures thereof in any ratio, and/or its physiologically tolerable salts.

34. A pharmaceutical preparation which comprises one or more compounds of the formula Ie as claimed in claim 33 and/or their physiologically tolerable salts in addition to one or more pharmaceutically innocuous carriers and/or additives.

35. A kit comprising a pharmaceutical preparation comprising a VLA-4-antagonizing effective amount of one or more compounds of formula I



(I)

in which

W is R^1-A-C(R^{13}) or R^1-A-CH=C;
Y is a carbonyl, thiocarbonyl or methylene group;
Z is N(R^0), oxygen, sulfur or a methylene group;
A is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_3-C_7)-cycloalkylene, phenylene, phenylene-(C_1-C_6)-alkyl, (C_1-C_6)-alkylenephenyl, phenylene-(C_2-C_6)-alkenyl or a bivalent radical of a 5- or 6-membered saturated or unsaturated ring which can contain 1 or 2 nitrogen atoms and can be mono- or disubstituted by (C_1-C_6)-alkyl or doubly bonded oxygen or sulfur;
B is a bivalent radical from the group consisting of (C_1-C_6)-alkylene, (C_2-C_6)-alkenylene, phenylene, phenylene-(C_1-C_3)-alkyl, (C_1-C_3)-alkylenephenyl, where the bivalent (C_1-C_6)-alkylene radical can be unsubstituted or substituted by a radical from the group consisting of (C_1-C_8)-alkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_3-C_{10})-cycloalkyl, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_6)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl and heteroaryl-(C_1-C_6)-alkyl optionally substituted in the heteroaryl radical;
D is C(R^2)(R^3), N(R^3) or CH=C(R^3);
E is tetrazolyl, (R^8O)$_2$P(O), HOS(O)$_2$, R^9NHS(O)$_2$ or R^{10}CO;
R is hydrogen, (C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical;
R^0 is hydrogen, (C_1-C_8)-alkyl, (C_3-C_{12})-cycloalkyl, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-bicycloalkyl, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl, (C_6-C_{12})-tricycloalkyl, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, optionally substituted heteroaryl, heteroaryl-(C_1-C_8)-alkyl optionally substituted in the heteroaryl radical, CHO, (C_1-C_8)-alkyl-CO, (C_3-C_{12})-cycloalkyl-CO, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-bicycloalkyl-CO, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-CO, (C_6-C_{12})-tricycloalkyl-CO, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-CO, optionally substituted (C_6-C_{14})-aryl-CO, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl-CO optionally substituted in the aryl radical, optionally substituted heteroaryl-CO, heteroaryl-(C_1-C_8)-alkyl-CO optionally substituted in the heteroaryl radical, (C_1-C_8)-alkyl-S(O)$_n$, (C_3-C_{12})-cycloalkyl-S(O)$_n$, (C_3-C_{12})-cycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, (C_6-C_{12})-bicycloalkyl-S(O)$_n$, (C_6-C_{12})-bicycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, (C_6-C_{12})-tricycloalkyl-S(O)$_n$, (C_6-C_{12})-tricycloalkyl-(C_1-C_8)-alkyl-S(O)$_n$, optionally substituted (C_6-C_{14})-aryl-S(O)$_n$,(C_6-C_{14})-aryl-(C_1-C_8)-alkyl-S(O)$_n$ optionally substituted in the aryl radical, optionally substituted heteroaryl-S(O)$_n$ or heteroaryl-(C_1-C_8)-alkyl-S(O)$_n$ optionally substituted in the heteroaryl radical, where n is 1 or 2;
R^1 is X-NH-C(=NH)-(CH_2)$_p$ or X^1-NH-(CH_2)$_p$, where p is 0, 1, 2 or 3;
X is hydrogen,(C_1-C_6)-alkyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_{18})-alkylcarbonyloxy-(C_1-C_6)-alkoxycarbonyl, optionally substituted (C_6-C_{14})-arylcarbonyl, optionally substituted (C_6-C_{14})-aryloxycarbonyl, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxycarbonyl which can also be substituted in the aryl radical, (R^8O)$_2$P(O), cyano, hydroxyl, (C_1-C_6)-alkoxy, (C_6-C_{14})-aryl-(C_1-C_6)-alkoxy which can also be substituted in the aryl radical, or amino;

X^1 has one of the meanings of X or is R'-NH-C(=N-R"), where R' and R" independently of one another have the meanings of X;

R^2 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical or (C_3-C_8)-cycloalkyl;

R^3 is hydrogen, (C_1-C_8)-alkyl, optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, (C_3-C_8)-cycloalkyl, (C_2-C_8)-alkenyl, (C_2-C_8)-alkynyl, (C_2-C_8)-alkenylcarbonyl, (C_2-C_8)-alkynylcarbonyl, pyridyl, $R^{11}NH$, R^4CO, $COOR^4$, $CON(CH_3)R^{14}$, $CONHR^{14}$, $CSNHR^{14}$, $COOR^{15}$, $CON(CH_3)R^{15}$ or $CONHR^{15}$;

R^4 is hydrogen or (C_1-C_{28})-alkyl which can optionally be mono- or polysubstituted by identical or different radicals $R^{4'}$;

$R^{4'}$ is hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1-C_{18})$-alkyl)aminocarbonyl, amino-(C_2-C_{18})-alkylaminocarbonyl, amino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_1-C_3)-alkylphenyl-(C_1-C_3)-alkylaminocarbonyl, (C_1-C_{18})-alkylcarbonylamino-(C_2-C_{18})-alkylaminocarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, (C_1-C_{18})-alkoxy, (C_1-C_{18})-alkoxycarbonyl, optionally substituted (C_3-C_8)-cycloalkyl, halogen, nitro, trifluoromethyl or the radical R^5;

R^5 is optionally substituted (C_6-C_{14})-aryl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl optionally substituted in the aryl radical, a mono- or bicyclic 5- to 12-membered heterocyclic ring which can be aromatic, partially hydrogenated or completely hydrogenated and which can contain one, two or three identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur, a radical R^6 or a radical R^6CO-, where the aryl radical and, independently thereof, the heterocyclic radical can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_{18})-alkyl, (C_1-C_{18})-alkoxy, halogen, nitro, amino and trifluoromethyl;

R^6 is R^7R^8N, R^7O or R^7S or an amino acid side chain, a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-, and their esters and amides, where hydrogen or hydroxymethyl can optionally stand in place of free functional groups and/or where free functional groups can be protected by protective groups customary in peptide chemistry;

R^7 is hydrogen, (C_1-C_{18})-alkyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkyl, (C_1-C_{18})-alkylcarbonyl, (C_1-C_{18})-alkoxycarbonyl, (C_6-C_{14})-arylcarbonyl, (C_6-C_{14})-aryl-(C_1-C_8)-alkylcarbonyl or (C_6-C_{14})-aryl-(C_1-C_{18})-alkyloxycarbonyl, where the alkyl groups can optionally be substituted by an amino group and/or where the aryl radicals can be mono- or polysubstituted by identical or different radicals from the group consisting of (C_1-C_8)-alkyl, (C_1-C_8)-alkoxy, halogen, nitro, amino and trifluoromethyl, or is a natural or unnatural amino acid, imino acid, optionally N-(C_1-C_8)-alkylated or N-$((C_6-C_{14})$-aryl-(C_1-C_8)-alkylated) azaamino acid or a dipeptide radical which can also be substituted in the aryl radical and/or in which the peptide bond can be reduced to -NH-CH_2-;

R^8 is hydrogen, (C_1-C_{18})-alkyl, optionally substituted (C_6-C_{14})-aryl or (C_6-C_{14})-aryl-(C_1-C_8)-alkyl which can also be substituted in the aryl radical;

R^9 is hydrogen, aminocarbonyl, $(C_1$-$C_{18})$-alkylaminocarbonyl, $(C_3$-$C_8)$-cycloalkylaminocarbonyl, optionally substituted $(C_6$-$C_{14})$-arylaminocarbonyl, $(C_1$-$C_{18})$-alkyl, optionally substituted $(C_6$-$C_{14})$-aryl or $(C_3$-$C_8)$-cycloalkyl;

R^{10} is hydroxyl, $(C_1$-$C_{18})$-alkoxy, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxy which can also be substituted in the aryl radical, optionally substituted $(C_6$-$C_{14})$-aryloxy, amino or mono- or di-$((C_1$-$C_{18})$-alkyl)amino;

R^{11} is hydrogen, $(C_1$-$C_{18})$-alkyl, $R^{12}CO$, optionally substituted $(C_6$-$C_{14})$-aryl-$S(O)_2$, $(C_1$-$C_{18})$-alkyl-$S(O)_2$, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical or $R^9NHS(O)_2$;

R^{12} is hydrogen, $(C_1$-$C_{18})$-alkyl, $(C_2$-$C_8)$-alkenyl, $(C_2$-$C_8)$-alkynyl, optionally substituted $(C_6$-$C_{14})$-aryl, $(C_1$-$C_{18})$-alkoxy, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxy which can also be substituted in the aryl radical, optionally substituted $(C_6$-$C_{14})$-aryloxy, amino or mono- or di-$((C_1$-$C_{18})$-alkyl)amino;

R^{13} is hydrogen, $(C_1$-$C_6)$-alkyl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkyl optionally substituted in the aryl radical or $(C_3$-$C_8)$-cycloalkyl;

R^{14} is hydrogen or $(C_1$-$C_{28})$-alkyl which can optionally be mono- or polysubstituted by identical or different radicals from the group consisting of hydroxyl, hydroxycarbonyl, aminocarbonyl, mono- or di-$((C_1$-$C_{18})$-alkyl)aminocarbonyl, amino-$(C_2$-$C_{18})$-alkylaminocarbonyl, amino-$(C_1$-$C_3)$-alkylphenyl-$(C_1$-$C_3)$-alkylaminocarbonyl, $(C_1$-$C_{18})$-alkylcarbonylamino-$(C_1$-$C_3)$-alkylphenyl-$(C_1$-$C_3)$-alkylaminocarbonyl, $(C_1$-$C_{18})$-alkylcarbonyl-amino-$(C_2$-$C_{18})$-alkylaminocarbonyl, $(C_6$-$C_{14})$-aryl-$(C_1$-$C_8)$-alkoxycarbonyl which can also be substituted in the aryl radical, amino, mercapto, $(C_1$-$C_{18})$-alkoxy, $(C_1$-$C_{18})$-alkoxycarbonyl, optionally substituted $(C_3$-$C_8)$-cycloalkyl, $HOS(O)_2$-$(C_1$-$C_3)$-alkyl, $R^9NHS(O)_2$-$(C_1$-$C_3)$-alkyl, $(R^8O)_2P(O)$-$(C_1$-$C_3)$-alkyl, tetrazolyl-$(C_1$-$C_3)$-alkyl, halogen, nitro, trifluoromethyl and R^5;

R^{15} is R^{16}-$(C_1$-$C_6)$-alkyl or R^{16};

R^{16} is a 6- to 24-membered bicyclic or tricyclic radical which is saturated or partially unsaturated and which can also contain one to four identical or different heteroatoms from the group consisting of nitrogen, oxygen and sulfur and which can also be substituted by one or more identical or different substituents from the group consisting of $(C_1$-$C_4)$-alkyl and oxo;

b, c, d and f independently of one another are 0 or 1, but cannot all simultaneously be 0;

e, g and h independently of one another are 0, 1, 2, 3, 4, 5 or 6;

in all their stereoisomeric forms and mixtures thereof in any ratio, and/or of their physiologically tolerable salts;

one or more physiologically acceptable carriers and/or additives;

and instructions for use.

36. The kit as claimed in claim 35 wherein the VLA-4-antagonizing effective amount is an amount effective for suppressing inflammation.

37. The kit as claimed in claim 35 wherein the VLA-4-antagonizing effective amount is an amount effective for inhibiting leucocyte migration and/or adhesion.

38. The kit as claimed in claim 35 wherein the VLA-4-antagonizing effective amount is an amount effective for treatment or prevention of a disease or disorder selected from the group consisting of rheumatoid arthritis, inflammatory bowel disease, systemic lupus erythematosus, inflammatory disorders of the central nervous system, asthma, allergies, cardiovascular disorders, arteriosclerosis, restenoses, diabetes, damage to organ transplants, tumor growth, tumor metastasis, and malaria.